



## PATENT ABSTRACTS OF JAPAN

(11) Publication number: **04136154 A**(43) Date of publication of application: **11.05.92**

(51) Int. Cl

**C23C 8/38**(21) Application number: **02257175**(71) Applicant: **SUMITOMO HEAVY IND LTD**(22) Date of filing: **28.09.90**(72) Inventor: **ARAKI TATSURO****(54) PLASMA TREATING DEVICE****(57) Abstract:**

**PURPOSE:** To allow the safe execution of a continuous plasma treatment of a material, such as thin steel strip, traveling in a regulated moving line by constituting the above device in such a manner that this material is grounded and is further maintained substantially at a negative potential.

**CONSTITUTION:** The thin steel strip 12 traveling in the regulated moving line is grounded and electrodes 25 are installed on both sides above and below this moving line in a plasma treating chamber. Plasma generating means are respectively provided on the outer side of the respective electrodes 25. Each of the plasma generating means is constituted of a filament 22, an anode electrode plate 23 having plural holes and a cathode electrode plate 24 having plural holes. A gaseous mixture composed  $N_2$  and  $H_2$  is introduced into this plasma generating means and is brought into collision against thermions, by which the gases are ionized and are converted to plasma.  $N$  ions are stucked to the thin steel strip 12 by arc-discharging between the electrodes 25 and the thin steel strip 12. Since the electrodes 25 maintained at a positive potential are disposed to face the moving line at this time and, therefore, the thin steel strip 12 is maintained at the negative potential

relative to the electrodes 25 even when the strip is grounded. The steel strip is thus subjected to the safe plasma treatment by the generated plasma.

COPYRIGHT: (C)1992,JPO&amp;Japio

